

### Section 63 Cast-In-Place Concrete Pipe

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#### 4-6301 General

Cast-in-place concrete pipe is used for culverts operating under low head conditions and is generally not placed under a roadbed. For the design criteria for this type of pipe, see Topic 854 of the *Highway Design Manual*. Also, note that special soil conditions are necessary for installing cast-in-place concrete pipe.

#### 4-6301 General

#### 4-6302 Before Work Begins

Before work begins, the resident engineers and the assistant resident engineers should review the plans, specifications, and the “Materials Information,” and inspect the sites of all planned installations. During the preliminary review and inspections, the resident engineers and assistants should also do the following:

#### 4-6302 Before Work Begins

- If any existing conditions preclude successful installation of the pipe, make any necessary contract changes by contract change order.
- Verify the receipt and proper distribution of Form CEM-3101, “Notice of Materials To Be Used,” which would cover portland cement concrete.
- Arrange for preliminary testing and mix design. (Refer to Section 90 of the *Standard Specifications* and to Section 4-90, “Portland Cement Concrete,” of the *Construction Manual* (manual) for information on the production of portland cement concrete.)
- Examine the proposed equipment for making the pipe.

#### 4-6303 During the Course of Work

During work operations, the resident engineers and assistant resident engineers should do the following:

#### 4-6303 During the Course of Work

- Ensure that the pipe will be placed to the planned flow line grade by spot checking elevations using control stakes set by Caltrans.
- Determine that the bottom of the trench, as shown on the plans, is shaped to the pipe’s external diameter.
- Require that the surface, against which the concrete will be placed, is moist but free of standing water, mud, and debris.
- Order the discontinuance or alteration of any equipment or method that doesn’t produce the desired result.
- Check the penetration of the concrete. Make enough sets of concrete cylinders to ensure the minimum required strength prior to placing backfill material.

- Inspect freshly placed concrete for consolidation. Rock pockets indicate inadequately consolidated concrete. Sight along the pipe's flow line to ensure no irregularities exist outside the specified tolerance. Make measurements to check required thickness. Make a rough check of thickness by comparing the volume of concrete placed with the theoretical volume of the pipe in place. Ensure construction joints meet specifications.
- Inspect the pipe periodically throughout the progress of work and order any necessary repairs.
- Require that the pipe is cured, backfilled, and protected as specified.
- Before recommending contract acceptance or relief of maintenance, require the pipe to be cleaned if necessary.

**4-6304 Measurement and Payment**

Determine the quantity of pipe by using the slope length shown on the plans or calculated from staking notes or information on the plans, plus or minus any ordered changes. Quantity calculations should reflect this method of measurement. Also, to ensure the proper payment, review the payment clause in the specifications.